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10/673,282	09/30/2003	Sang Jin Yun	YHK-0120	4745

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EXAMINER	
BECK, ALEXANDER S	
ART UNIT	**PAPER NUMBER**
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/673,282	YUN ET AL.	
	Examiner	Art Unit	
	Alexander S. Beck	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,6-10,12-16,18 and 20-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,6-10,12-16,18 and 20-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 October 2007* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Acknowledgment is made of the amendment filed by the applicant on Oct. 29, 2007, in which claims 1, 4, 12, 14-16, 18, 23 and 24 are amended. Claims 1, 2, 4, 6-10, 12-16, 18 and 20-24 are currently pending and an Office action on the merits follows.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference characters not mentioned in the description: As to corrected Fig. 6B submitted Oct. 29, 2007, the specification is absent any corresponding description of element "T13". As to the amended specification submitted Oct. 29, 2007, Fig. 7B is absent any illustration of element "T13". From the amended specification, it appears that Fig. 7B should have been corrected such that element "T13" depicts the increased low width, as opposed to the maintained low width illustrated in corrected Fig. 6B. Appropriate correction is required.

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 2, 4, 6-10, 12-16, 18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,023,406 to Nunomura et al. ("Nunomura") in view of U.S. Patent No. 7,180,482 to Homma ("Homma").

As to claim 1, Nunomura discloses a method of driving a plasma display panel, comprising: setting the number of sustaining pulses in response to an average picture level; and setting a period of each sustaining pulse in proportion to said average picture level, the period of each sustaining pulse including a high width and a low width (Nunomura, Fig. 2), the sustaining pulse having a wider period as the average picture level becomes higher, the wider period of the sustaining pulse being obtained by

increasing a duration of the sustaining pulse in proportion to the average picture level (Nunomura, Fig. 4; see also col. 7, ll. 13-35). Nunomura does not disclose expressly wherein the wider period of the sustaining pulse is obtained by increasing a duration of the *high width* of the sustaining pulse and maintaining a duration of the *low width* of the sustaining pulse, as claimed.

Homma discloses a method of driving a plasma display panel, wherein a sustaining pulse includes a high width and a low width, and wherein the duration of the high width of the sustaining pulse is increased and a duration of the low width of the sustaining pulse is decreased (Homma, Fig. 9; see also col. 7, l. 15 - col. 8, l. 25). At the time the invention was made, it would have been obvious to modify the sustaining pulse having a proportionally wider period as the average picture level becomes higher, taught by Nunomura, such that a duration of the high width of the sustaining pulse is increased relative to the low width of the sustaining pulse, as taught/suggested by Homma. The suggestion/motivation for doing so would have been to improve brightness of the display (Homma, col. 8, ll. 7-25). Thus, examiner respectfully submits that Nunomura as modified by Homma teaches/suggests the sustaining pulse having a wider period as the average picture level becomes higher, the wider period of the sustaining pulse being obtained by increasing a duration of the *high width* of the sustaining pulse in proportion to the average picture level.

Neither Nunomura nor Homma, either taken alone or collectively, disclose expressly wherein the duration of the *low width* of the sustaining pulse is maintained. However, the instant application is silent regarding any criticality of maintaining the duration of the low width of the sustaining pulse. Rather, it appears the improvement over the prior art is achieved by increasing the duration of the *high width* of the sustaining pulse in proportion to the average picture level such that the duration of the high width is larger than the duration of the low width, thereby achieving a stable sustain discharge and the probability capable of causing the sustaining discharge is increased (Spec., p. 12, l. 33

– p. 13, l. 9). Thus, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to further modify the teachings of Nunomura and Homma such that the duration of the low width of the sustaining pulse is maintained because applicant has not disclosed that maintaining a low width duration provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well either a maintained low width duration, as claimed, or a shortened low width duration, as taught by Homma, because it would perform equally well in increasing a high width duration in proportion to an average picture level, thereby improving display performance. Therefore, it would have been an obvious matter of design choice to modify the teachings of Nunomura and Homma to obtain the invention as specified in claim 1. An additional suggestion/motivation for doing so would have been for ease of implementation by only having to adjust only the high width duration instead of both the high width and low width duration, as one of ordinary skill in the art would appreciate.

As to claim 2, Nunomura discloses wherein said setting the number of sustaining pulses includes setting the number of sustaining pulses in inverse proportion to the average picture level (e.g., an average picture level of 4 corresponds to approximately 750 sustaining pulses and an average picture level of 15 corresponds to approximately 500 sustaining pulses) (Nunomura, col. 7, ll. 13-15).

As to claim 6, Nunomura discloses wherein a maximum period of the sustaining pulse is wider, by approximately 0.5μs to 10μs, than a minimum period of the sustaining pulse (e.g., 6.4μs - 4.0μs = 2.4μs) (Nunomura, col. 7, ll. 13-35).

As to claim 7, Nunomura discloses wherein said period of the sustaining pulse is changed in at least partial region of said average picture level (e.g., partial regions average picture level = 0 to 3, 4 to 8 and 9-15) (Nunomura, col. 7, ll. 13-35).

As to claim 8, Nunomura discloses setting a minimum limit frequency at more than a desired average picture level such that said period of the sustaining pulse is limited to less than a certain width (e.g., frequency limit is inversely proportional to the period of sustain pulses) (Nunomura, col. 7, ll. 13-35).

As to claim 9, Nunomura discloses wherein said minimum limit frequency is set such that a maximum period of the sustaining pulse is widened, by approximately 0.5μs to 10μs, than a minimum period of the sustaining pulse (e.g., 6.4μs - 4.0μs = 2.4μs) (Nunomura, col. 7, ll. 13-35).

As to claim 10, Nunomura discloses setting a maximum limit frequency at less than a desired average picture level such that said period of the sustaining pulse is limited to more than a certain width (e.g., frequency limit is inversely proportional to the period of sustain pulses) (Nunomura, col. 7, ll. 13-35).

As to claim 22, Nunomura discloses wherein said period of the sustaining pulse is increased in a stepwise manner in accordance with the average picture level as said average picture level goes from a lower level into a higher level (Nunomura, col. 7, ll. 13-35).

As to claim 4, Nunomura discloses a method of driving a plasma display panel, comprising: setting the number of sustaining pulses in response to an average picture level; and setting a period of each sustaining pulse in proportion to said average picture

level, the period of each sustaining pulse including a high width and a low width (Nunomura, Fig. 2), the sustaining pulse having a wider period as the average picture level becomes higher, the wider period being obtained by increasing a duration of the sustaining pulse in proportion to the average picture level (Nunomura, Fig. 3; see also col. 6, ll. 50-67). Nunomura does not disclose expressly wherein the wider period of the sustaining pulse is obtained by increasing a duration of the *low width* of the sustaining pulse and maintaining a duration of the *high width* of the sustaining pulse, as claimed.

Homma discloses a method of driving a plasma display panel, wherein a sustaining pulse includes a high width and a low width, and wherein the duration of the low width of the sustaining pulse is increased and a duration of the high width of the sustaining pulse is decreased (Homma, Fig. 11; see also col. 8, l. 32 - col. 9, l. 8). At the time the invention was made, it would have been obvious to modify the sustaining pulse having a proportionally wider period as the average picture level becomes higher, taught by Nunomura, such that a duration of the low width of the sustaining pulse is increased relative to the high width of the sustaining pulse, as taught/suggested by Homma. The suggestion/motivation for doing so would have been to improve resolution of the display (Homma, col. 9, ll. 4-8). Thus, examiner respectfully submits that Nunomura as modified by Homma teaches/suggests the sustaining pulse having a wider period as the average picture level becomes higher, the wider period of the sustaining pulse being obtained by increasing a duration of the *low width* of the sustaining pulse in proportion to the average picture level.

Neither Nunomura nor Homma, either taken alone or collectively, disclose expressly wherein the duration of the *high width* of the sustaining pulse is maintained. However, the instant application is silent regarding any criticality of maintaining the duration of the high width of the sustaining pulse. Rather, it appears the improvement over the prior art is achieved by increasing the duration of the *low width* of the sustaining pulse in proportion to the average picture level such that the duration of the low width is

larger than the duration of the high width, thereby achieving a stable sustain discharge (Spec., p. 13, l. 18 – p. 14, l. 1). Thus, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to further modify the teachings of Nunomura and Homma such that the duration of the high width of the sustaining pulse is maintained because applicant has not disclosed that maintaining a high width duration provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well either a maintained high width duration, as claimed, or a shortened high width duration, as taught by Homma, because it would perform equally well in increasing a low width duration in proportion to an average picture level, thereby improving display performance. Therefore, it would have been an obvious matter of design choice to modify the teachings of Nunomura and Homma to obtain the invention as specified in claim 4. An additional suggestion/motivation for doing so would have been for ease of implementation by only having to adjust only the low width duration instead of both the low width and high width duration, as one of ordinary skill in the art would appreciate.

As to claim 12, all of the limitations have already been discussed and met by Nunomura and Homma in the above discussion of claim 1. For example, Nunomura discloses a method of driving a plasma display panel, comprising: setting the number of sustaining pulses in response to an average picture level; and setting a period of the sustaining pulse in proportion to the average picture level, the period being set such that the sustaining pulse has a wider period as the average picture level becomes higher (Nunomura, Fig. 4; see also col. 7, ll. 13-35.) Nunomura does not disclose expressly wherein duration of the *high width* is widened and a duration of the *low width* of the sustaining pulse is maintained, as claimed.

Homma discloses a method of driving a plasma display panel, wherein a sustaining pulse includes a high width and a low width, and wherein the duration of the high width of the sustaining pulse is increased and a duration of the low width of the sustaining pulse is decreased (Homma, Fig. 9; see also col. 7, l. 15 - col. 8, l. 25). At the time the invention was made, it would have been obvious to modify the sustaining pulse having a proportionally wider period as the average picture level becomes higher, taught by Nunomura, such that a duration of the high width of the sustaining pulse is increased relative to the low width of the sustaining pulse, as taught/suggested by Homma. The suggestion/motivation for doing so would have been to improve brightness of the display (Homma, col. 8, ll. 7-25). Thus, examiner respectfully submits that Nunomura as modified by Homma teaches/suggests the sustaining pulse having a wider period as the average picture level becomes higher, the wider period of the sustaining pulse being obtained by increasing a duration of the *high width* of the sustaining pulse in proportion to the average picture level.

Neither Nunomura nor Homma, either taken alone or collectively, disclose expressly wherein the duration of the *low width* of the sustaining pulse is maintained. However, the instant application is silent regarding any criticality of maintaining the duration of the low width of the sustaining pulse. Rather, it appears the improvement over the prior art is achieved by increasing the duration of the *high width* of the sustaining pulse in proportion to the average picture level such that the duration of the high width is larger than the duration of the low width, thereby achieving a stable sustain discharge and the probability capable of causing the sustaining discharge is increased (Spec., p. 12, l. 33 – p. 13, l. 9). Thus, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to further modify the teachings of Nunomura and Homma such that the duration of the low width of the sustaining pulse is maintained because applicant has not disclosed that maintaining a low width duration provides an advantage, is used for a particular purpose, or solves a stated

problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well either a maintained low width duration, as claimed, or a shortened low width duration, as taught by Homma, because it would perform equally well in increasing a high width duration in proportion to an average picture level, thereby improving display performance. Therefore, it would have been an obvious matter of design choice to modify the teachings of Nunomura and Homma to obtain the invention as specified in claim 1. An additional suggestion/motivation for doing so would have been for ease of implementation by only having to adjust only the high width duration instead of both the high width and low width duration, as one of ordinary skill in the art would appreciate.

As to claim 13, Nunomura as modified by Homma teaches/suggests wherein said high width of the sustaining pulse is changed in at least a partial region of said average picture level (e.g., partial regions average picture level = 4 to 8 and 9-15) (Nunomura, col. 7, ll. 13-35).

As to claim 23, Nunomura as modified by Homma teaches/suggests where setting the high width occurs without setting the low width of the sustaining pulse in proportion to said average picture level (e.g., see discussion of design choice in claim 12).

As to claim 14, all of the limitations have already been discussed and met by Nunomura and Homma in the above discussion of claim 4. For example, Nunomura discloses a method of driving a plasma display panel, comprising: setting the number of sustaining pulses in response to an average picture level; and setting a period of the sustaining pulse in proportion to the average picture level, the period being set such that the sustaining pulse has a wider period as the average picture level becomes higher (Nunomura, Fig. 4; see also col. 7, ll. 13-35.) Nunomura does not disclose expressly

wherein duration of the *low width* is widened and a duration of the *high width* of the sustaining pulse is maintained, as claimed.

Homma discloses a method of driving a plasma display panel, wherein a sustaining pulse includes a high width and a low width, and wherein the duration of the low width of the sustaining pulse is increased and a duration of the high width of the sustaining pulse is decreased (Homma, Fig. 11; see also col. 8, l. 32 - col. 9, l. 8). At the time the invention was made, it would have been obvious to modify the sustaining pulse having a proportionally wider period as the average picture level becomes higher, taught by Nunomura, such that a duration of the low width of the sustaining pulse is increased relative to the high width of the sustaining pulse, as taught/suggested by Homma. The suggestion/motivation for doing so would have been to improve resolution of the display (Homma, col. 9, ll. 4-8). Thus, examiner respectfully submits that Nunomura as modified by Homma teaches/suggests the sustaining pulse having a wider period as the average picture level becomes higher, the wider period of the sustaining pulse being obtained by increasing a duration of the *low width* of the sustaining pulse in proportion to the average picture level.

Neither Nunomura nor Homma, either taken alone or collectively, disclose expressly wherein the duration of the *high width* of the sustaining pulse is maintained. However, the instant application is silent regarding any criticality of maintaining the duration of the high width of the sustaining pulse. Rather, it appears the improvement over the prior art is achieved by increasing the duration of the *low width* of the sustaining pulse in proportion to the average picture level such that the duration of the low width is larger than the duration of the high width, thereby achieving a stable sustain discharge (Spec., p. 13, l. 18 – p. 14, l. 1). Thus, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to further modify the teachings of Nunomura and Homma such that the duration of the high width of the sustaining pulse is maintained because applicant has not disclosed that maintaining

a high width duration provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well either a maintained high width duration, as claimed, or a shortened high width duration, as taught by Homma, because it would perform equally well in increasing a low width duration in proportion to an average picture level, thereby improving display performance. Therefore, it would have been an obvious matter of design choice to modify the teachings of Nunomura and Homma to obtain the invention as specified in claim 4. An additional suggestion/motivation for doing so would have been for ease of implementation by only having to adjust only the low width duration instead of both the low width and high width duration, as one of ordinary skill in the art would appreciate.

As to claim 15, Nunomura as modified by Homma teaches/suggests wherein said low width of the sustaining pulse is changed in at least a partial region of said average picture level (e.g., partial regions APL = 0 to 1 and 2 to 5) (Nunomura, col. 6, ll. 50-67).

As to claim 24, Nunomura as modified by Homma teaches/suggests where setting the low width occurs without setting a high width of the sustaining pulse in proportion to said average picture level (e.g., see discussion of design choice in claim 12).

As to claim 16, Nunomura discloses a driving apparatus for a plasma display panel, comprising: average picture level means for setting an average picture level corresponding to a video data; and period setting means for setting a period of a sustaining pulse in such a manner to be in proportion to said average picture level set by the average picture level means, the sustaining pulse including a high width and a low width (Nunomura, Fig. 2), the sustaining pulse having a wider period as the average picture level becomes higher, the wider period being obtained by increasing a duration of

the sustaining pulse in proportion to the average picture level (Nunomura, Figs. 4-5; see also col. 7, ll. 13-35; col. 8, l. 39 – col. 9, l. 5). Nunomura does not disclose expressly wherein the wider period of the sustaining pulse is obtained by increasing a duration of the *high width* of the sustaining pulse and maintaining a duration of the *low width* of the sustaining pulse, as claimed.

Homma discloses a method of driving a plasma display panel, wherein a sustaining pulse includes a high width and a low width, and wherein the duration of the high width of the sustaining pulse is increased and a duration of the low width of the sustaining pulse is decreased (Homma, Fig. 9; see also col. 7, l. 15 - col. 8, l. 25). At the time the invention was made, it would have been obvious to modify the sustaining pulse having a proportionally wider period as the average picture level becomes higher, taught by Nunomura, such that a duration of the high width of the sustaining pulse is increased relative to the low width of the sustaining pulse, as taught/suggested by Homma. The suggestion/motivation for doing so would have been to improve brightness of the display (Homma, col. 8, ll. 7-25). Thus, examiner respectfully submits that Nunomura as modified by Homma teaches/suggests the sustaining pulse having a wider period as the average picture level becomes higher, the wider period of the sustaining pulse being obtained by increasing a duration of the *high width* of the sustaining pulse in proportion to the average picture level.

Neither Nunomura nor Homma, either taken alone or collectively, disclose expressly wherein the duration of the *low width* of the sustaining pulse is maintained. However, the instant application is silent regarding any criticality of maintaining the duration of the low width of the sustaining pulse. Rather, it appears the improvement over the prior art is achieved by increasing the duration of the *high width* of the sustaining pulse in proportion to the average picture level such that the duration of the high width is larger than the duration of the low width, thereby achieving a stable sustain discharge and the probability capable of causing the sustaining discharge is increased (Spec., p. 12, l. 33

– p. 13, l. 9). Thus, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to further modify the teachings of Nunomura and Homma such that the duration of the low width of the sustaining pulse is maintained because applicant has not disclosed that maintaining a low width duration provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well either a maintained low width duration, as claimed, or a shortened low width duration, as taught by Homma, because it would perform equally well in increasing a high width duration in proportion to an average picture level, thereby improving display performance. Therefore, it would have been an obvious matter of design choice to modify the teachings of Nunomura and Homma to obtain the invention as specified in claim 1. An additional suggestion/motivation for doing so would have been for ease of implementation by only having to adjust only the high width duration instead of both the high width and low width duration, as one of ordinary skill in the art would appreciate.

As to claim 20, Nunomura discloses limit value setting means for setting at least one of a maximum limit value capable of widening a period of the sustaining pulse and a minimum limit value capable of narrowing said period of the sustaining pulse (Nunomura, Fig. 5; see also col. 7, ll. 13-35; col. 8, l. 39 – col. 9, l. 5).

As to claim 21, Nunomura discloses wherein said period setting means receives at least one of said maximum limit value and said minimum limit value to control said period of the sustaining pulse (Nunomura, Fig. 5; see also col. 7, ll. 13-35; col. 8, l. 39 – col. 9, l. 5).

As to claim 18, Nunomura discloses a driving apparatus for a plasma display panel, comprising: average picture level means for setting an average picture level corresponding to a video data; and period setting means for setting a period of a sustaining pulse in such a manner to be in proportion to said average picture level set by the average picture level means, the sustaining pulse including a high width and a low width (Nunomura, Fig. 2), the sustaining pulse having a wider period as the average picture level becomes higher, the wider period being obtained by increasing a duration of the sustaining pulse in proportion to the average picture level, wherein said period setting means sets the width of the sustaining pulse in proportion to said average picture level (Nunomura at col. 6, ll. 50-67; col. 8, ln. 39 – col. 9, ln. 5.) Nunomura does not disclose expressly wherein the wider period of the sustaining pulse is obtained by increasing a duration of the *low width* of the sustaining pulse and maintaining a duration of the *high width* of the sustaining pulse, as claimed.

Homma discloses a method of driving a plasma display panel, wherein a sustaining pulse includes a high width and a low width, and wherein the duration of the low width of the sustaining pulse is increased and a duration of the high width of the sustaining pulse is decreased (Homma, Fig. 11; see also col. 8, l. 32 - col. 9, l. 8). At the time the invention was made, it would have been obvious to modify the sustaining pulse having a proportionally wider period as the average picture level becomes higher, taught by Nunomura, such that a duration of the low width of the sustaining pulse is increased relative to the high width of the sustaining pulse, as taught/suggested by Homma. The suggestion/motivation for doing so would have been to improve resolution of the display (Homma, col. 9, ll. 4-8). Thus, examiner respectfully submits that Nunomura as modified by Homma teaches/suggests the sustaining pulse having a wider period as the average picture level becomes higher, the wider period of the sustaining pulse being obtained by increasing a duration of the *low width* of the sustaining pulse in proportion to the average picture level.

Neither Nunomura nor Homma, either taken alone or collectively, disclose expressly wherein the duration of the *high width* of the sustaining pulse is maintained. However, the instant application is silent regarding any criticality of maintaining the duration of the high width of the sustaining pulse. Rather, it appears the improvement over the prior art is achieved by increasing the duration of the *low width* of the sustaining pulse in proportion to the average picture level such that the duration of the low width is larger than the duration of the high width, thereby achieving a stable sustain discharge (Spec., p. 13, l. 18 – p. 14, l. 1). Thus, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to further modify the teachings of Nunomura and Homma such that the duration of the high width of the sustaining pulse is maintained because applicant has not disclosed that maintaining a high width duration provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well either a maintained high width duration, as claimed, or a shortened high width duration, as taught by Homma, because it would perform equally well in increasing a low width duration in proportion to an average picture level, thereby improving display performance. Therefore, it would have been an obvious matter of design choice to modify the teachings of Nunomura and Homma to obtain the invention as specified in claim 4. An additional suggestion/motivation for doing so would have been for ease of implementation by only having to adjust only the low width duration instead of both the low width and high width duration, as one of ordinary skill in the art would appreciate.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 2, 4, 6-10, 12-16, 18 and 20-24 have been considered but are moot in view of the new ground of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander S. Beck whose telephone number is (571) 272-7765. The examiner can normally be reached on M-F, 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

asb
Jan. 9, 2007

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